FINGER CNC

开放设计 无限可能

Open Designs Infinite Possibilities

B SERIES LATHE MACHINE CONTROLLER

—

B系列车床控制器

广州亿达科技有限公司

Guangzhou Finger Technology Co., Ltd

Company Profile

公司简介

广州亿达科技有限公司旨在打造性能卓越的开放式数控系统，让自动化开发变得更简单。 作为中国高性能控制器制造商之一，亿达科技专注于客戶需求，不断突破技术研发边界，形成了完善的自动化关键技术生态系统，以行业广度和专业深度为客戶提供具有差异化的解决方案和便捷服务，竭力让客戶从产品中获得助力，快速成长，产生价值。

亿达科技以技术为本，始于数控，却不止数控。坚定立足于数控技术，积极探究运动控制器、边缘计算控制器、Open CNC开发平台、CAD/CAM技术、机器视觉技术、工业物联网技术等。领先行业的Open CNC开发平台，让机器设备的电控客制化开发变得成本更低、更简单；7个核心技术内嵌（运动控制、HMI、PLC、机器视觉、CAD/CAM、物联网、3D仿真），为客戶提供最佳一站式解决方案。

凭借出色的开放式产品架构和多种技术集成能力，亿达科技在车床、铣床、磨床、弹簧机、刀具机、木工机械、绕线机、弯管机、3C电子等行业，积累了丰富的产品经验和客戶基础，并持续创造卓越。

潜心笃志，匠心创变，厚发求精，共生共赢，崇德守信是亿达科技创立以来所秉持的经营理念和企业价值。一直以来，我们坚持初心，砥砺前行，为成为世界领先的开放式数控系统品牌不断努力。让中国智造，中国服务响彻全球。

Guangzhou Finger Technology Co., Ltd. is committed to creating high-performance open CNC systems, making automation development simpler. As one of China's leading high-performance controller manufacturers, Finger Technology focuses on customer needs and continually pushes the boundaries of technological innovation. The company has built a comprehensive automation ecosystem with key technologies, offering differentiated solutions and convenient services to clients. Finger strives to help customers gain value from its products, accelerate growth, and generate substantial returns.

Finger Technology is fundamentally driven by technology, originating from CNC but not confined to it. Firmly rooted in CNC technology, the company actively explores motion controllers, edge computing controllers, Open CNC development platforms, CAD/CAM technologies, machine vision technologies, and industrial Internet of Things (IoT) technologies. Its industry-leading Open CNC development platform makes the customized development of machine equipment electrical controls more cost-effective and simpler. With seven core technologies embedded (motion control, HMI, PLC, machine vision, CAD/CAM, IoT, and 3D simulation), Finger Technology provides customers with the best one-stop solutions.

Leveraging its outstanding open product architecture and diverse technology integration capabilities, Finger Technology has accumulated extensive product experience and a solid customer base in industries such as lathes, milling machines, grinding machines, spring machines, tool machines, woodworking machinery, winding machines, pipe bending machines, and 3C electronics, continuously achieving excellence.

Devotion to excellence, innovation with craftsmanship, pursuit of precision, symbiosis and win-win, and integrity are the core business philosophy and values upheld by Finger Technology since its establishment. We have always remained true to our original intention, striving forward with determination, and continuously working towards becoming the world’s leading open CNC system brand, ensuring that Chinese manufacturing and Chinese services resonate globally.

企业愿景

让自动化开发变得更简单

Company Vision

Make automation development simpler.

企业使命

构建更开放、更便捷、更包容的控制器产品
竭力让客戶从产品中获得助力
快速成长，产生价值
并成为世界领先的开放式数控系统品牌

Company Mission

Build more open, convenient, and inclusive controller products.
Strive to help customers gain support from products
grow rapidly, and create value
Become the world's leading brand in open CNC systems

核心价值观

求实诚信 | 坚持初心 | 破旧立新
追求卓越 | 携手并进

Core Values

Practical Integrity | Stay True to the Original Intention | Break Tradition, Embrace Newness
Pursue Excellence | Progress Together

FINGER CNC

Directory
目录

Complete Bus Solution for Lathe Machine Controller

全套总线解决方案

MECHATROLINK-III/EtherCAT/泛用轴口Generic Axis Port

控制器 Controller

8寸控制器
8-inch Controller

驱动器 Driver

总线主轴驱动
Bus-based Spindle Drive

驱动器 Driver

伺服驱动
Servo Drive

伺服驱动
Servo Drive

伺服驱动
Servo Drive

EtherCAT通讯
EtherCAT Communication

IO板 I/O Module

32输入32输出 IO板
32-Input/32-Output I/O Module

16输入16输出 IO板
16-Input/16-Output I/O Module

24输入16输出 IO板
24-Input/16-Output I/O Module

6轴控制运动模块
6-Axis Motion Control Module

DAC模块
DAC Module

配件Accessories

对刀仪
Tool Presetter

光栅尺(SSI)
Linear Scale (SSI)

手轮Handwheel

电机 Motor

主轴电机
Spindle Motor

电主轴
Electric Spindle

电机 Motor

伺服电机
Servo Motor

伺服电机
Servo Motor

伺服电机
Servo Motor

直线电机
Linear Motor

DD马达
DD Motor

主轴多种搭配方式——伺服主轴解决方案
Various Spindle Configuration Options - Servo Spindle Solutions

主轴驱动
Spindle Drive

同步电主轴
Synchronous Electric Spindle

异步电主轴
Asynchronous Electric Spindle

永磁同步电机
Permanent Magnet Synchronous Motor

普通异步主轴
Conventional Asynchronous Spindle

正余弦编码器
Sine And Cosine Encoder

光电/旋变编码器
Photoelectric/rotary Encoder

Ttl增量编码器
Ttl Incremental Encoder

正余弦编码器
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Ttl Incremental Encoder

总线控制——更快、更稳定、更多选择
Bus Control - Faster, More Stable, And More Options

MECHATROLINK

安川现场总线协议
Yaskawa Fieldbus Protocol

ASIC实现模式，更稳定
ASIC Implementation Mode, More Stable

相比M-II总线，速度快10倍
10 Times Faster Than M-II Bus

支持完整M-III总线功能
Supports Full M-III Bus Functionality

EtherCAT®

倍福现场总线协议
Beckhoff Fieldbus Protocol

带宽可变技术，更灵活
Variable Bandwidth Technology,more Flexible

实时性：通讯周期更短
Real-time Performance: Shorter Communication Cycle

支持Repeat技术，更安全
Support For Repeat Technology, Enhancing Safety

- 伺服轴、主轴全系列支持MECHATROLINK-III/EtherCAT总线通讯，内嵌Repeat技术，总线通讯更稳定；MECHATROLINK-III：从站数量最大限制63，无IO模块，开发简单；EtherCAT：传输效率高、后续开发拓展性强、从站数量最大限制65536，有IO模块。仅用网线即可实现伺服、主轴和IO通讯。
- The entire series of servo axes and spindles support MECHATROLINK-III/EtherCAT bus communication with built-in Repeat technology, ensuring more stable bus communication. MECHATROLINK-III: It allows a maximum of 63 slave devices, does not have IO modules, and offers simplified development.EtherCAT: It provides high transmission efficiency, strong scalability for future development, and supports a maximum of 65,536 slave devices with IO modules. Servo, spindle, and IO communication can be achieved using a single Ethernet cable.

Lathe Machine Controller Series Products

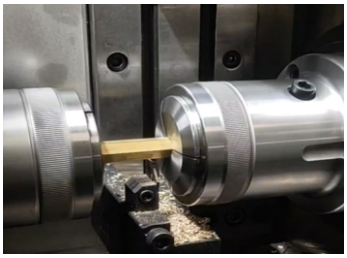
车床系列产品

	300TA系列 300TA Series		400TA系列 400TA Series
产品效果 Product Benefits			
安装方式 Installation Method	横式 Horizontal Installation	横式/立式 Horizontal/Vertical Installation	
产品定位 Product Positioning	标准两轴车床 Standard Two-Axis Lathe		不带Y的双通道车床，比如，双通道公共主轴，车床+桁架 Dual-Channel Lathe Without Y-Axis, e.g., Dual-Channel Shared Spindle, Lathe + Gantry
适用机型 Applicable Machine Models	XZ+AC+刀塔轴 XZ + AC + Turret Axis	(XZAC+刀塔轴+定位轴) (XZAC + Turret Axis + Positioning Axis)	单通道：(XZABC+轴控刀塔+定位 双通道：(XZC+刀塔轴+定位轴) + (X1Z1+刀塔轴+刀塔定位轴) 双通道：(XZAC+轴控刀塔+定位轴)+XYZ桁架 Single Channel: (XZABC + Axis-Controlled Turret + Positioning) Dual Channel: (XZC + Turret Axis + Positioning Axis) + (X1Z1 + Turret Axis + Turret Positioning Axis) Dual Channel: (XZAC + Axis-Controlled Turret + Positioning Axis) + XYZ Gantry
常用配置 Common Configurations	1通道5轴 1-Channel, 5-Axis	1通道6轴 1-Channel, 6-Axis	2通道9轴 2-Channel, 9-Axis
最大扩展 Maximum Expansion	I32/O32		I64/O64
标准配件 Standard Accessories	标配5米线材，标配16输入/16输出IO板 (IO板料号：ESC-IO16) Standard 5-meter Wiring, Standard 16-input/16-output I/O Module(I/O Module Part Number: ESC-IO16)		
常用型号 Common Models	300TA1-H	300TA2-H(V)/300TA3-H(V)/300TA4-V	400TA2-H(V)/400TA3-H(V)/400TA4-V

	400TB系列 400TB Series	600TC系列 600TC Series	800TC系列 800TC Series
产品效果 Product Benefits			
安装方式 Installation Method	横式/立式 Horizontal/Vertical Installation		
产品定位 Product Positioning	带Y的车铣复合车床，比如，双通道主轴对接料加工/车床加桁架 Turn-Mill Compound Lathe with Y-Axis, e.g., Dual-Channel Spindle Docking for Workpiece Processing / Lathe with Gantry	600T为400T系列升级款，支持车铣复合和插补Y 600T is an upgraded version of the 400T series, supporting turn-mill compound machining and interpolation of the Y-axis	800T系列为高配版，支持插补Y，双车铣复合 The 800T series is the high-end version, supporting Y-axis interpolation and dual turn-mill compound machining
适用机型 Applicable Machine Models	单通道：(XYZABC+刀塔轴+伺服尾座+定位轴) 双通道：(XZC+刀塔轴+定位轴) + (X1Z1+刀塔轴+刀塔定位轴) 双通道：(XZC+刀塔轴+定位轴) + (X1Z1C1+刀塔轴) 双通道：(XZAC+轴控刀塔+定位轴)+XYZ桁架 Single Channel: (XYZABC + Turret Axis + Servo Tailstock + Positioning Axis) Dual Channel: (XZC + Turret Axis + Positioning Axis) + (X1Z1 + Turret Axis + Turret Positioning Axis) Dual Channel: (XZC + Turret Axis + Positioning Axis) + (X1Z1C1 + Turret Axis) Dual Channel: (XZAC + Axis-Controlled Turret + Positioning Axis) + XYZ Gantry	单通道：(XYZABC+刀塔轴+伺服尾座+定位轴) 双通道：(XZAC+刀塔轴+定位轴) +(X1Z1C1+刀塔轴+定位轴) 双通道：(XZAC+刀塔轴+定位轴) +(X1Z1A1C1+刀塔轴) 双通道：XZAC+刀塔轴+定位轴+(X1Y1Z1A1桁架) Single Channel:(XYZABC + Turret Axis + Servo Tailstock + Positioning Axis) Dual Channel:(XZAC + Turret Axis + Positioning Axis) + (X1Z1C1 + Turret Axis + Positioning Axis) Dual Channel:(XZAC + Turret Axis + Positioning Axis) + (X1Z1A1C1 + Turret Axis) Dual Channel:(XZAC + Turret Axis + Positioning Axis) + (X1Y1Z1A1 Gantry)	双通道：(XYZABC+刀塔轴+定位轴) *2 三通道：(XYZABC+刀塔轴+定位轴)*2+X3Y3Z3A3(双车+机械手) Dual Channel:(XYZABC + Turret Axis + Positioning Axis) * 2 Triple Channel:(XYZABC + Turret Axis + Positioning Axis) * 2 + X3Y3Z3A3 (Dual Turn + Robot Arm)
常用配置 Common Configurations	2通道9轴 2-Channel, 9-Axis	2通道11轴 2-Channel, 11-Axis	3通道20轴 3-Channel, 20-Axis
最大扩展 Maximum Expansion	I64/O64	I128/O128	I256/O256
标准配件 Standard Accessories	标配5米线材，标配16输入/16输出IO板 (IO板料号：ESC-IO16) Standard 5-meter Wiring, Standard 16-input/16-output I/O Module(I/O Module Part Number: ESC-IO16)		
常用型号 Common Models	400TB2-H(V)/400TB3-H(V)/400TB4-V	600TC2-H(V)/600TC3-H(V)/600TC4-V	800TC2-H(V)/800TC3-H(V)/800TC4-V

Special Features

特色功能



01 主轴高速对接料 High-speed Spindle Material Docking

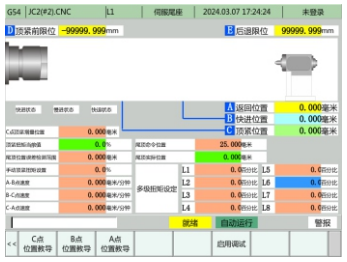
利用相对静止原理，在主轴运转状态下进行转速同步和相位同步，同步完成后进行工件首尾对接料，提高加工效率并减少因人工装夹产品产生的精度误差。

High-speed spindle material docking. Using the principle of relative stillness, the spindle operates at a certain speed and phase synchronization is achieved. Once synchronized, the workpiece can be joined at the beginning and end, thereby improving processing efficiency and reducing accuracy errors caused by manual workpiece clamping.

02 机械手独立通道控制 Independent Channel Control of Robotic Arm

机械手控制模块，可独立使用一个通道进行控制，可采用教导式编程，编程更简单，工艺调整更灵活，防护更安全。

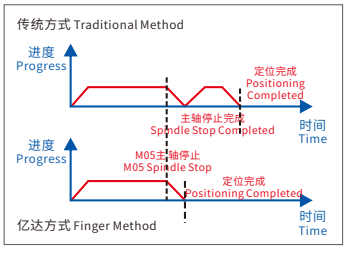
Robotic Arm Control Module, capable of independent control using a single channel, supports teach pendant programming for easier programming, more flexible process adjustments, and enhanced safety protection.



03 伺服尾顶功能 Servo Tailstock Function

传统方式使用液压/气压控制尾顶沿导轨纵向移动调整其位置，精度不高。伺服尾顶则可以快速精准调整到用户所需要的位置精度、扭矩精度。

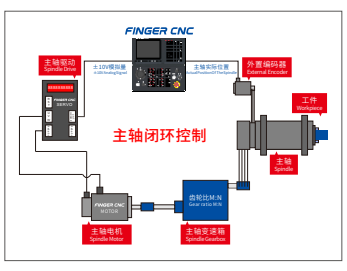
In traditional methods, hydraulic or pneumatic systems are used to control the vertical movement of the tailstock along the guide rail, but the precision is not high. On the other hand, a servo tailstock allows for quick and precise adjustment to the desired position accuracy and torque accuracy as per the user's requirements.



04 主轴动态定位 Dynamic Spindle Positioning

传统方式：主轴高速旋转减速停止，再执行主轴定位；
亿达方式：主轴高速旋转减速停止过程中直接定位，效率更高。

Traditional Approach: The spindle rotates at high speed, slows down, and then stops before performing spindle positioning.
Finger Approach: The spindle is directly positioned during the deceleration and stop process of high-speed rotation, resulting in higher efficiency.



05 主轴全闭环控制 Full Closed-loop Control Of The Main Spindle

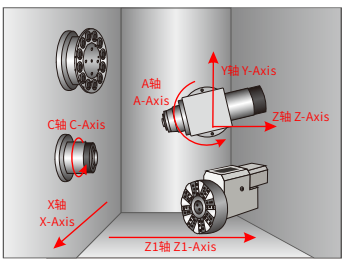
V型带主轴闭回路定位：1.V型带连接可精准定位；2.V型带连接噪音小、缓冲吸震；3.无需切换模式提高分度效率；4.主轴变速箱连接，任意齿轮比下主轴可定位；5.定位精度高，编码器分辨率越高精度越高。

V-belt spindle closed-loop positioning:1.Accurate positioning with V-belt connection;2.Low noise and shock absorption with V-belt connection;3.Increased indexing efficiency without the need for mode switching;4.Positioning of the main spindle with variable gearbox connection, allowing for positioning at any gear ratio;5.High positioning accuracy, with higher resolution of the encoder resulting in higher precision.

06 冷热机补偿功能 Coolant-Temperature Compensation Function

温度补偿功能解决机床各轴因热涨冷缩影响工件尺寸的问题，该功能启用系统自动对各轴的变化量进行补偿，从而提高加工精度，防止冷热机影响工件尺寸变化。

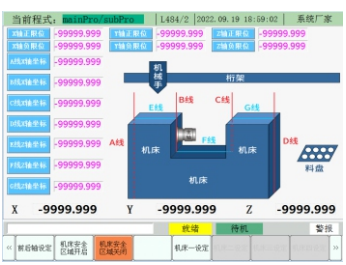
Temperature compensation function resolves the issue of dimensional variations in workpieces caused by thermal expansion and contraction of the machine tool axes. This function enables the system to automatically compensate for the changes in each axis, thereby improving machining accuracy and preventing the influence of temperature fluctuations on workpiece dimensions.



07 车铣复合-RTCP功能 Turning-Milling Compound - RTCP Function

RTCP功能，提供三维刀长补偿，客户只需在CAM软件上计算工件轮廓坐标点，系统自动计算刀尖点位置，保证刀尖点在加工轮廓曲面上。

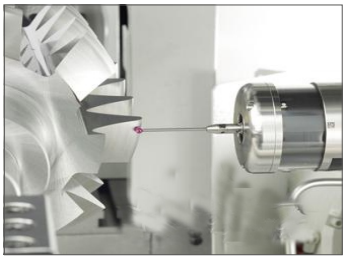
The RTCP function provides three-dimensional tool length compensation, allowing customers to calculate the coordinates of the workpiece contour points in CAM software. The system then automatically calculates the tool tip position to ensure that the tool tip remains on the machining contour surface. This feature guarantees accurate and precise cutting along complex workpiece profiles.



08 安全区域功能 Safety Zone Function

安全区域功能，主要用于机床的防撞保护，客户根据机床的实际位置设置防撞区域范围，轴向运动时，系统自动检测安全区域位置，并进行提示。

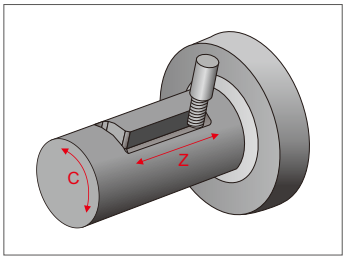
This function is primarily used for collision protection on machine tools. Customers can set the collision protection zone based on the actual position of the machine tool. When there is axial movement, the system automatically detects the position of the safety zone and provides prompts.



09 高速G31探测 High-speed G31 Probing

高速G31功能主要用在自动补偿、对刀等场合。频率响应速度高达20KHz，为高速探测功能提供有效解决方案，大幅减少因为响应速度引起的对刀效率低、精度不高等问题。

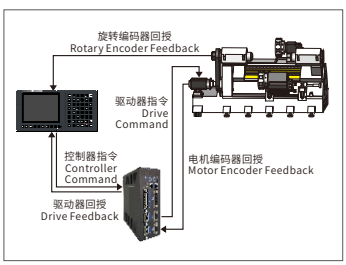
The high-speed G31 function is mainly used in applications such as automatic compensation and tool setting. With a frequency response speed of up to 20kHz, it provides an effective solution for high-speed probing tasks, significantly reducing issues such as low tool setting efficiency and lack of precision caused by slow response speeds.



10 圆柱插补功能 Cylindrical Interpolation Function

用角度指令的旋转轴移动量在内部转换为外表面上的直线轴距离，便于跟其他轴进行直线或圆弧插补，可极大简化圆柱表面加工编程。

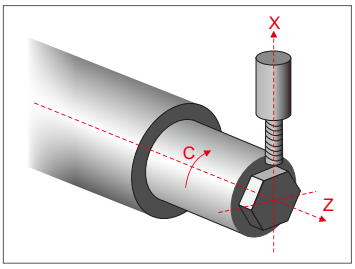
The angular instruction is used to convert the rotational movement of the rotary axis into linear axis distances on the outer surface. This enables smooth interpolation with other axes, whether it's for linear or circular tool path generation. This feature greatly simplifies the programming for cylindrical surface machining operations.



11 全闭环控制功能 Closed-Loop Control Function

通过两路编码器，对机台轴向进行全闭环控制，解决因机台冷热变形及传动机构误差引起的定位精度问题。支持总线数位型速度控制全闭环、模拟量速度控制全闭环。

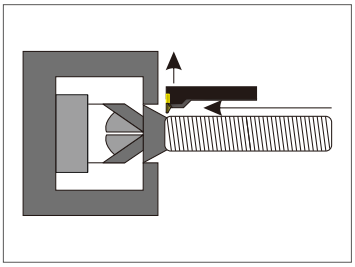
By utilizing two encoders, the machine axes are controlled in a closed-loop manner, addressing positioning accuracy issues caused by thermal deformation of the machine and errors in the transmission mechanism. It supports closed-loop control of digital-type velocity control and analog-type velocity control via the bus.



12 极坐标插补 Polar Coordinate Interpolation

通过直角坐标系编辑指令实现直线轴与旋转轴插补的轮廓控制。例如：凸轮加工、工件外径铣削加工、不规则工件铣削等。

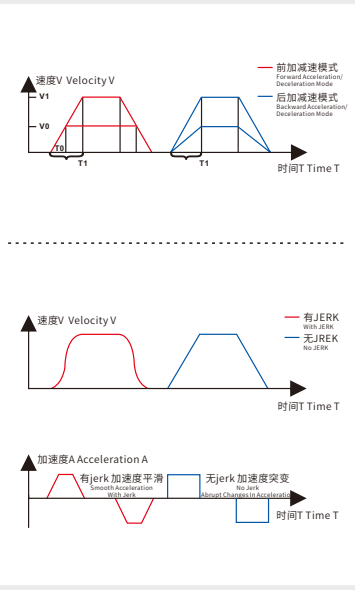
Contour control of linear axes and rotary axes interpolation is achieved by editing commands in the Cartesian coordinate system. For example: cam machining, outer diameter milling of workpieces, milling of irregular workpieces, etc.



13 螺纹快速退尾 Rapid Thread Retraction

可在车螺纹的退尾位置以最快的速度提刀，减少螺纹加工退尾部分的螺距不准。(加速度可根据机台实际的承受能力适当调整)

The tool can be retracted at the thread back-off position at the fastest speed, reducing the thread pitch deviation in the back-off portion of the threading process. (The acceleration can be adjusted appropriately based on the machine's actual load capacity.)



14 高速高精控制模式 High-speed High-precision Control Mode

前加减速模式：加减速阶段，加速度一致，时间不固定。
后加减速模式：加减速阶段，时间一致，加速度不固定。

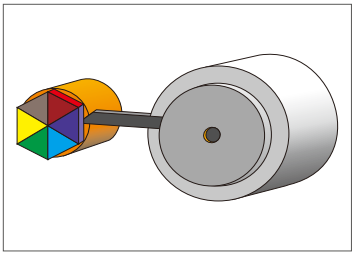
Front acceleration/deceleration mode: In the acceleration and deceleration phase, the acceleration is consistent, and the time is not fixed.
Back acceleration/deceleration mode: In the acceleration and deceleration phase, the time is consistent, and the acceleration is not fixed.

JERK说明：

后加模式，在加减速阶段，加速度是瞬间达到的，在加速度比较大的时候，对机台冲击大，轴向运动不平顺。(蓝色无jerk功能)
前加模式，在加减速阶段，加速度是线性变化的，在加速度比较大的时候，JERK功能可以保证轴向运动足够平顺，消除车床抖动。(红色有jerk功能)

JERK Explanation:

Backward acceleration mode: In the acceleration and deceleration phase, the acceleration is instantly reached. When the acceleration is high, it creates a significant impact on the machine, resulting in uneven axial movement. (Blue color indicates no JERK functionality)
Forward acceleration mode: In the acceleration and deceleration phase, the acceleration changes linearly. When the acceleration is high, the JERK functionality ensures smooth axial movement and eliminates machine shaking. (Red color indicates JERK functionality)



15 多边形加工 Polygon Machining

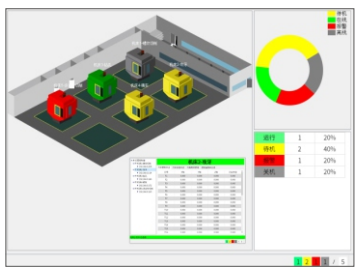
多主轴可以实现多边形快速车削，主轴自动进行相位同步，闭回路保证主轴相位不丢失，并可以实现程序中断后重复多边形切削。

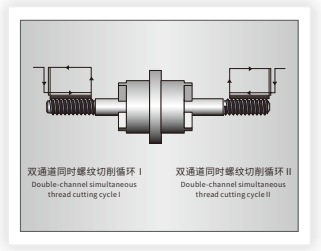
Multi-spindle enables rapid polygon turning, with automatic phase synchronization of the spindles. Closed-loop control ensures no loss of spindle phase, allowing for repeated polygon cutting even after program interruptions.

16 远程刀补 Remote Tool Compensation

通过局域网内与控制器连接，根据实时测量数据远程修改刀补，设备管理更高效，操作更安全。

Remote tool compensation allows for the modification of tool offsets based on real-time measurement data through a connection to the controller within a local area network (LAN). This enables more efficient equipment management and safer operations.

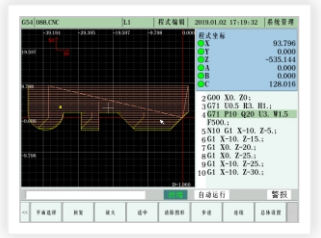




17 双通道同主轴螺纹切削功能 Dual-Channel Thread Cutting with Main Spindle Function

双通道同主轴螺纹切削功能可实现两个通道共用一个主轴作为螺纹切削的参考主轴进行加工。

Dual-Channel Thread Cutting with Main Spindle Function allows both channels to share a common main spindle for thread cutting operations.



18 凹凸路径加工 Concave and Convex Path Machining

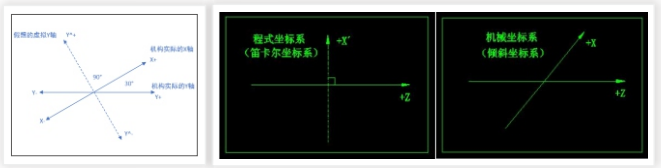
G71/G72可实现凹凸路径加工的自动粗车、精车循环，大大简化了编程难度，操作更便捷。

The G71/G72 commands enable automatic rough turning and finish turning cycles for contour machining, greatly simplifying programming complexity and providing more convenient operation.

19 倾斜轴控制 Tilt Axis Control

倾斜轴系统功能，主要解决编程在假想坐标系（笛卡尔直角坐标系）下，在机构的倾斜坐标系下执行的功能，其坐标和运动的转换由系统内部自动完成。

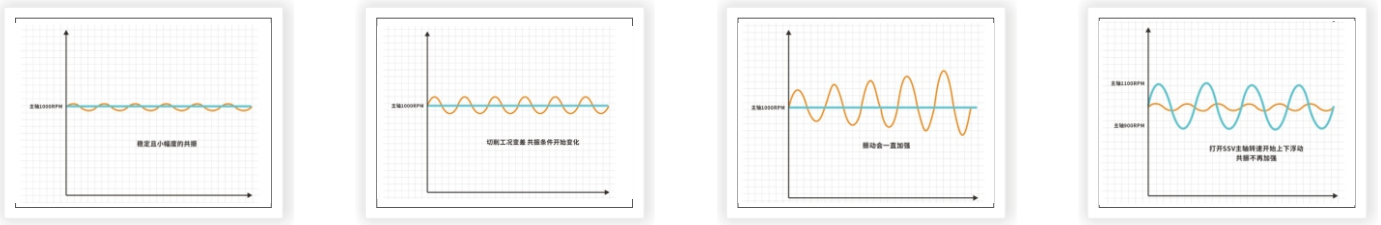
The tilt axis system function primarily addresses the execution of programs written in an imaginary coordinate system (Cartesian coordinate system) within a tilted machine coordinate system. The system automatically handles the conversion between coordinates and movements internally.



20 主轴振荡控制（SSV技术）Spindle Oscillation Control (SSV Technology)

在车床加工过程中，通过SSV主轴振荡控制技术，不断改变主轴转速来降低车削振动影响，解决长棒料车削且没有尾座固定的情况下，切削震动的问题，保证切削光洁度，减少刀具磨损。

During lathe machining, SSV spindle oscillation control technology continuously varies the spindle speed to reduce turning vibrations. This effectively addresses cutting vibrations when machining long bar stock without tailstock support, ensuring surface finish quality and minimizing tool wear.

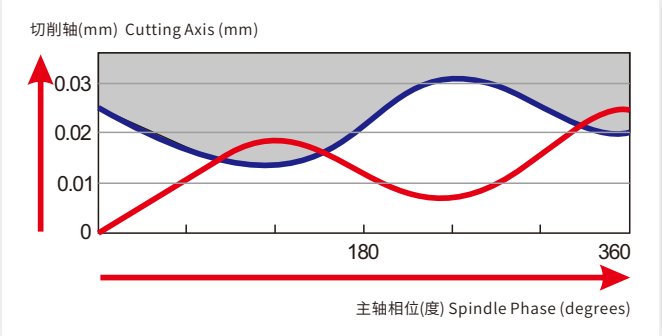


21 全同步断屑功能 Full Synchronous Chip Breaking

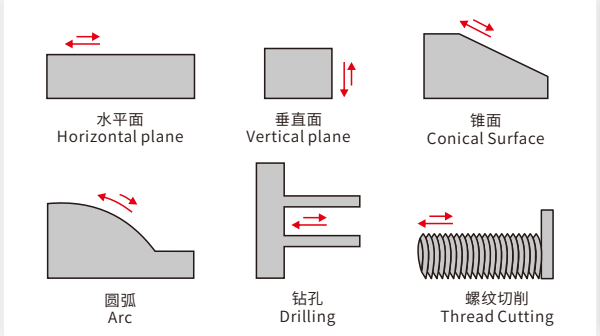
可实现进给轴同步追随主轴进行精准断屑（长度每段相同），断屑加工更平顺，降低对机床和刀具的冲击，提高了断屑加工时刀具的使用寿命和机床的寿命。

It enables the feed axis to synchronously follow the main spindle for precise chip breaking (with equal lengths in each segment). This results in smoother chip breaking, reduces impact on the machine tool and cutting tool, and improves the tool life and machine tool life during chip breaking operations.

原理图 Schematic Diagram



适用场合 Applicable Scenarios



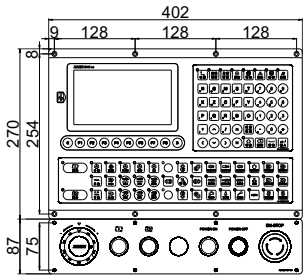
Appearance Display
Installation Dimensions

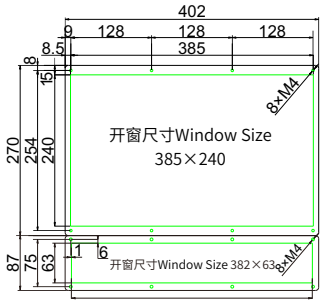
外观展示及安装尺寸

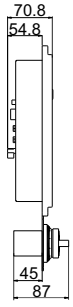
▶7寸车床控制器 7-inch Lathe Machine Controller

产品型号：300TA1-H （7寸横式） Product Model: 300TA1-H（7-inch Horizontal Type)
备注：默认为客户选配 Note: Defaulted as Customer's Option

辅助板 Auxiliary Board

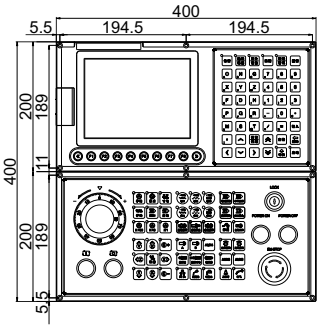


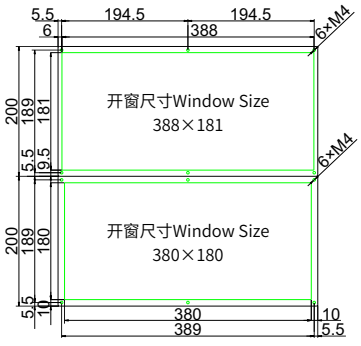


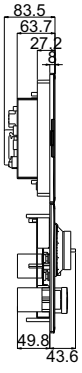


▶8寸车床控制器 8-inch Lathe Machine Controller

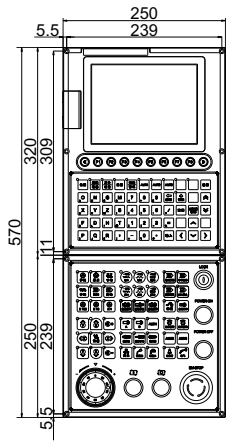
产品型号：300TA2-H/400TA2-H/400TB2-H/600TC2-H/800TC2-H（8寸横式）
Product Model: 300TA2-H/400TA2-H/400TB2-H/600TC2-H/800TC2-H (8-inch Horizontal Type)

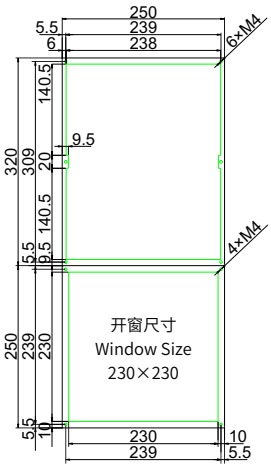


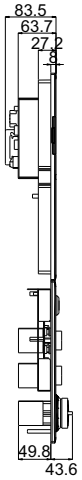




产品型号：300TA2-V/400TA2-V/400TB2-V/600TC2-V/800TC2-V（8寸立式）
Product Model: 300TA2-V/400TA2-V/400TB2-V/600TC2-V/800TC2-V (8-inch Horizontal Type)

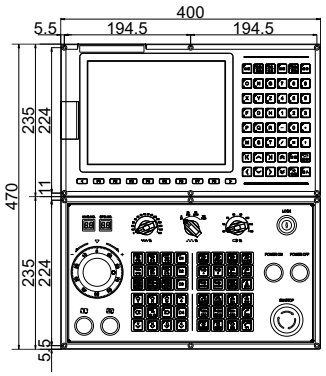


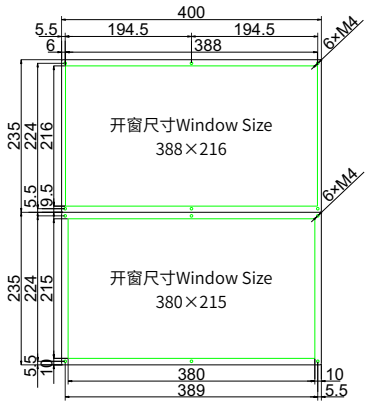


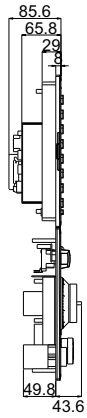


▶10.4寸车床控制器 10.4-inch Lathe Machine Controller

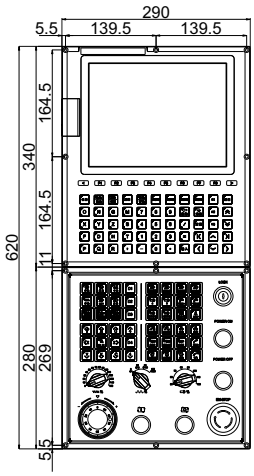
产品型号:300TA3-H/400TA3-H/400TB3-H/600TC3-H/800TC3-H(10.4寸横式)
Product Model: 300TA3-H/400TA3-H/400TB3-H/600TC3-H/800TC3-H(10.4-inch Horizontal Type)

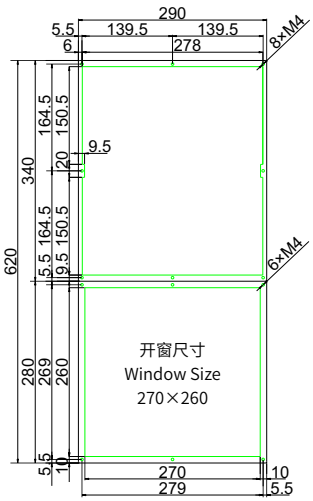


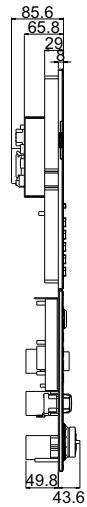




产品型号:300TA3-V/400TA3-V/400TB3-V/600TC3-V/800TC3-V(10.4寸立式)
Product Model: 300TA3-V/400TA3-V/400TB3-V/600TC3-V/800TC3-V(10.4-inch Horizontal Type)

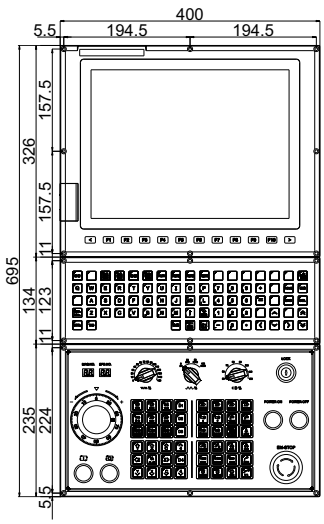


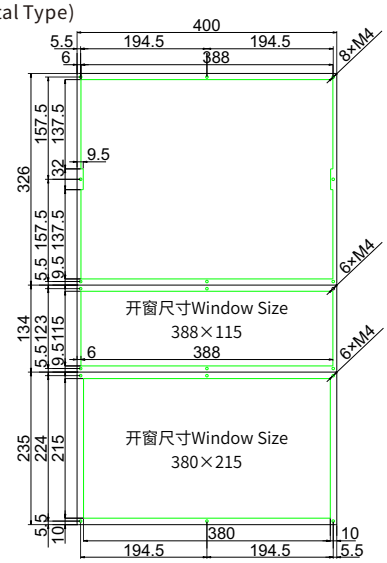


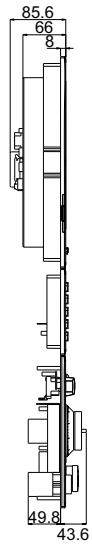


▶15寸车床控制器 15-inch Lathe Machine Controller

产品型号:300TA4-V/400TA4-V/400TB4-V/600TC4-V/800TC4-V(15寸立式)
Product Model: 300TA4-V/400TA4-V/400TB4-V/600TC4-V/800TC4-V(15-inch Horizontal Type)







Product Naming Rules and Accessory Specifications

产品命名规则及配件规格

▶▶产品料号 Product Part Number

B ① **0x** ② – **T** ③ **X3** ④ **A** ⑤ **H** ⑥ – **T** ⑦ **200** ⑧ – **F0** ⑨ **A** ⑩ **A1** ⑪ **P0** ⑫

①	产品系列 Product Series	B: B系列 B: B Series	
②	通讯方式 Communication Method	00: N0 00:NO	01: EtherCAT 01:EtherCAT 02: Mechatrolink-III 02:Mechatrolink-III … 05: 移动式EtherCAT控制器 05:Mobile EtherCAT Controller
③	触控标示 Touch Control Indication	N: 无触控 N: No Touch Control	T: 电阻屏 T: Resistive Touch Screen C: 电容屏 C: Capacitive Touch Screen
④	系统屏幕尺寸 System Screen Size	X0: 无屏幕 X0: No Screen	X1: 7寸 X1: 7-inch Screen X2: 8寸 X2: 8-inch Screen X3: 10.1寸 X3: 10.1-inch Screen X4: 10.4寸 X4: 10.4-inch Screen X5: 15寸 X5: 15-incah aScreen X6: 15.6寸 X6: 15.6-inch Screen X7: 17寸 X7: 17-inch Screen X8: 19寸 X8: 19-inch Screen X9: 21.5寸 X9: 21.5-inch Screen
⑤	系统款式 System Style	A: A系列塑胶面板 A: A Series Plastic Panel	B: A系列铁壳 B: A Series Metal Enclosure C: A系列铝合金面板 C: A Series Aluminum Alloy Panel A1:B系列塑胶面板 A1: B Series Plastic Panel B1: B系列铁壳 B1: B Series Metal Enclosure C1: B系列铝合金面板 C1: B Series Aluminum Alloy Panel A2:B系列塑胶面板(车铣新面膜) A2: B Series Plastic Panel (Lathe-Mill New Faceplate) B2:B系列铁壳(车铣新面膜) B2: B Series Iron Shell (Lathe-Mill New Faceplate) C2:B系列铝合金面板(车铣新面膜) C2: B Series Aluminum Alloy Panel (Lathe-Mill New Faceplate)
⑥	系统按键样式 System Button Style	N: 无按键 N: No Buttons	H: 横式 H: Horizontal V: 立式 V: Vertical C: 铁箱 C: Iron Enclosure
⑦	行业代码 Industry Code	T:车床 T:Lathe	M: 铣床 M: Milling W: 木工 W: Woodworking SP: 弹簧机 SP: Spring Machine ST:紧凑型车床 ST:Compact Lathe
⑧	行业子代码 Industry Subcode	T2: 200车床 T2: 200 Lathe	M2:200铣床 M2: 200 Milling Machine SP1:弹簧机 SP1: Spring Machine ST4:紧凑型400车床 ST4: Compact 400 Lathe
⑨	泛用轴数量 General Axis Quantity	F0:无泛用轴(ECAT) F0: No General-Purpose Axis (ECAT)	F1: F1: F2:含2个泛用轴(MIII) F2: Includes 2 General-Purpose Axes (MIII)
⑩	通道数 Number of Channels	A: 1通道 A: 1-Channel	B: 2通道 B: 2-Channel C: 3通道 C: 3-Channel D: 4通道 D: 4-Channel E: 5通道 E: 5-Channel F: 6通道 F: 6-Channel G: 7通道 G: 7-Channel H: 8通道 H: 8-Channel L: 9通道 L: 9-Channel J: 10通道 J: 10-Channel K: 11通道 K: 11-Channel … Z: 26通道 Z: 26-Channel
⑪	轴数 Number of Axes	A1: 1轴 A1: 1-Axes	A2: 2轴 A2: 2-Axes … B0: 10轴 B0: 10-Axes B1: 11轴 B1: 11-Axes C0: 20轴 C0: 20-Axes C1: 21轴 C1: 21-Axes M0: 120轴 M0: 120-Axes M1: 121轴 M1: 121-Axes … M8: 128轴 M8: 128-Axes …
⑫	辅助面板信息 Auxiliary Panel Information	P0:不带辅助面板 P0: Without Auxiliary Panel	P1:带辅助面板 P1: With Auxiliary Panel

▶▶产品型号 Product Model

400 T A 1 - H

- 【产品规格】H:横式 V:立式 [Product Specifications] H: Horizontal V: Vertical
- 【屏幕大小】1:7寸 2:8寸 3:10.4寸 4:15寸 [Screen Size] 1: 7-inch 2: 8-inch 3: 10.4-inch 4: 15-inch
- 【功能类型】A:标准 B:增强 C:特殊 [Function Type] A: Standard B: Enhanced C: Special
- 【行业类型】T:车床 M:铣床 [Industry Type] T: Lathe M: Milling Machine
- 【产品系列】300系列 400系列 600系列 800系列 [Product Series] 300 Series 400 Series 600 Series 800 Series

EtherCAT/16IN_16OUT/IO模块 EtherCAT/16IN_16OUT/IO Module

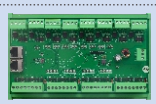
▶ESC-IO16

※ 长105*宽122*高55(mm)
※ (L)105mm*(W)122mm*(H)55mm

※ DC24V 电源输入(5.08 PITCH)
※ 提供电源反接保护
※ 16 INPUT / 16 OUTPUT
※ 单点最大输出2A
※ 可拆卸式欧规5.08 PITCH接线端子
※ INPUT(8PIN)/OUTPUT(4PIN) 防呆设计

※ DC24V power supply input (5.08 PITCH)
※ Provides reverse power protection
※ 16 INPUT / 16 OUTPUT
※ Single-point maximum output of 2A
※ Removable European standard 5.08 PITCH terminal block
※ INPUT (8PIN) / OUTPUT (4PIN) foolproof design

EtherCAT/32IN_32OUT/IO模块 EtherCAT/32IN_32OUT/IO Module



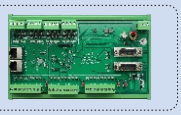
▶ESC-IO32

※ 长210*宽122*高55(mm)
※ (L)210mm*(W)122mm*(H)55mm

※ DC24V 电源输入(5.08 PITCH)
※ 提供电源反接保护
※ 32 INPUT / 32 OUTPUT
※ 单点最大输出2A
※ 可拆卸式欧规5.08 PITCH接线端子
※ INPUT(8PIN)/OUTPUT(4PIN) 防呆设计

※ DC24V power supply input (5.08 PITCH)
※ Provides reverse power protection
※ 32 INPUT / 32 OUTPUT
※ Single-point maximum output of 2A
※ Removable European standard 5.08 PITCH terminal block
※ INPUT (8PIN) / OUTPUT (4PIN) foolproof design

EtherCAT 24点输入/16点输出(晶体管)/2轴控制IO运动模块 EtherCAT 24-point input / 16-point output (transistor) / 2-axis control IO Motion Module



▶ESC-I24O16A2

※ 长136*宽124*高41(mm)
※ (L)136mm*(W)124mm*(H)41mm

※ DC24V 电源输入(5.08 PITCH)
※ 提供电源反接保护
※ 24 INPUT / 16 OUTPUT
※ 2轴泛用型轴向控制
※ 支持DC时钟同步 / 支持Repeat
※ 单点最大输出2A
※ 可拆卸式欧规5.08 PITCH接线端子
※ INPUT(8PIN)/OUTPUT(4PIN) 防呆设计

※ DC24V power input (5.08 PITCH)
※ Provides reverse power protection
※ 24 INPUT / 16 OUTPUT
※ 2-axis general-purpose axis control
※ Supports DC clock synchronization / Supports Repeat
※ Single-point maximum output of 2A
※ Removable European-style 5.08 PITCH terminal block
※ INPUT (8PIN) / OUTPUT (4PIN) foolproof design

EtherCAT 6轴控制(脉冲/模拟量)运动模块 EtherCAT 6-axis control (Pulse/Analog) Motion Module

▶ESC-AXES6

※ 长153*宽121*高42(mm)
※ (L)153mm*(W)121mm*(H)42mm

※ DC24V 电源输入(5.08 PITCH)
※ 提供电源反接保护
※ 6轴控制
※ 输出点光耦隔离，FET输出，单点最大1A 持续输出(瞬间最大允许9A)
※ 单点最大输出100mA
※ 可拆卸式欧规5.08 PITCH接线端子

※ DC24V power input (5.08 PITCH)
※ Provides reverse power protection
※ 6-Axis control
※ Output points optically isolated, FET output, maximum continuousoutput of 1A per point (maximum instantaneous allowable 9A)
※ Single-point maximum output of 100mA
※ Removable European-style 5.08 PITCH terminal block

系列Series	300T系列 300T Series		400T系列 400T Series		600T系列 600T Series	800T系列 800T Series
型号Model	300TA		400TA	400TB	600TC	800TC
常用下单型号 Commonly Ordered Models	300TA1-H	300TA2-H(V) 300TA3-H(V) 300TA4-V	400TA2-H(V) 400TA3-H(V) 400TA4-V	400TB2-H(V) 400TB3-H(V) 400TA4-V	600TC2-H(V) 600TC3-H(V) 600TC4-V	800TC2-H(V) 800TC3-H(V) 800TC4-V

▶系统规格 System Specifications

安装方式 Installation Method	横式 Horizontal	横式/立式 Horizontal/Vertical				
标准轴数(最大扩展,选配) Standard Number of Axes (Maximum Expansion, Optional)	5(5)	6(6)	9(9)		11(11)	20(20)
标准通道(最大通道,选配) Standard Channel (Maximum Channel, Optional)	1(1)		2(2)		2(2)	3(3)
单个通道最大联动轴数 Maximum Number Of Linked Axes Per Single Channel	3(XZC)		3(XZC)	4(XYZC)	4(XYZC)	5(XYZAC)
标准主轴数(最大主轴数,选配) Standard Number of Spindles(Maximum Channel, Optional)	2(2)		3(3)		4(4)	6(9)
显示屏尺寸 Display Screen Size	7寸 7 inch	8寸/10.4寸/15寸 8 inch/10.4 inch/15 inch				
应用场合(轴向分布) Application Scenarios (Axis Distribution)	单通道: (XZAC +刀塔轴) Single Channel: (XZAC + Turret Axis)	单通道: (XZAC+ 刀塔轴 +定位轴) Single Channel: (XZAC + Turret Axis + Positioning Axis)	单通道:(XZABC+轴控刀塔+定位轴) 双通道:(XZC+刀塔轴+定位轴) +(X1Z1C1+刀塔轴) 双通道:(XZAC+轴控刀塔+定位轴) +XYZ桁架 Single Channel:(XZABC + Axis -Controlled Turret + Positioning Axis) Dual Channel:(XZC + Turret Axis + Positioning Axis) + (X1Z1C1 + Turret Axis) Dual Channel:(XZAC + Axis -Controlled Turret + Positioning Axis) + XYZ Gantry	单通道:(XYZABC+刀塔轴+伺服尾座+定位轴) 双通道:(XZC+刀塔轴+定位轴) +(X1Z1C1+刀塔轴) 双通道:(XZAC+轴控刀塔+定位轴) +XYZ桁架 Single Channel:(XYZABC + Turret Axis + Servo Tailstock + Positioning Axis) Dual Channel:(XZC + Turret Axis + Positioning Axis) + (X1Z1C1 + Turret Axis) Dual Channel:(XZAC + Axis-Controlled Turret + Positioning Axis) + XYZ Gantry	单通道:(XYZABC+刀塔轴+伺服尾座+定位轴) 双通道:(XZAC+刀塔轴+定位轴) +(X1Z1C1+刀塔轴+定位轴) 双通道:(XZAC+刀塔轴+定位轴) +(X1Z1A1C1+刀塔轴) 双通道:XZAC+刀塔轴+定位轴 +(X1Y1Z1A1桁架) Single Channel:(XYZABC + Turret Axis + Servo Tailstock + Positioning Axis) Dual Channel:(XZAC + Turret Axis + Positioning Axis) + (X1Z1C1 + Turret Axis + Positioning Axis) Dual Channel:(XZAC + Turret Axis + Positioning Axis) + (X1Z1A1C1 + Turret Axis) Dual Channel:(XZAC + Turret Axis + Positioning Axis) + (X1Y1Z1A1 Gantry)	双通道:(XYZABC+刀塔轴+定位轴)*2 三通道:(XYZABC+刀塔轴+定位轴)*2 +X3Y3Z3A3(双车+机械手) Dual Channel:(XYZABC + Turret Axis + Positioning Axis) * 2 Triple Channel:(XYZABC + Turret Axis + Positioning Axis) * 2 + X3Y3Z3A3 (Dual Turning + Robot Arm)
DA/AD	选配拓展 Optional Expansion					
操作系统 Operating System	RT Linux					
内存 Memory	2GB					
程式容量 Program Capacity	8GB					
预读单节数 Number Of Pre-read Units	1000 Block/S		2000 Block/S		4000 Block/S	8000 Block/S
最大刀具补偿组数 Maximum Number Of Tool Compensation Groups	40组 40 Groups		160组 160 Groups			
传输 Transmission	USB/RS232/RS485/LAN/WIFI					
总线伺服 Bus Servo	MECHATROLINK-III (选配)、EtherCAT总线 MECHATROLINK-III (Optional), EtherCAT Bus					
总线主轴 Bus Spindle	●					
标准I/O Standard I/O	总线IO(不含脉冲口):I16/O16 Bus I/O (excluding pulse input): I16/O16					
最大拓展I/O Maximum Expandable I/O	I32/O32		I64/O64		I128/O128	I256/O256
绝对值功能 Absolute Value Function	ModbusTcp、RS232、RS485				ModbusTcp、RS485、SSI绝对值(选配) Modbus TCP, RS485, SSI Absolute Value (Optional)	

▶程序功能 Program function

编程指令(G代码) Programming instructions (G-codes)	遵循国际规范 Complies with international standards					
宏程序编程标准 Macro programming standards	支持(Macro B、Macro C) Supports (Macro B, Macro C)					
背景编程 Background programming	●	●	●	●	●	
对话式智能 Conversational intelligence	●	●	●	●	●	
程序U盘传输 Program transfer via USB drive	●	●	●	●	●	
程序自动检错 Automatic program error checking	●	●	●	●	●	
程序锁功能 Program lock function	限制程式编辑(选配) Program Editing Limitation (Optional)					

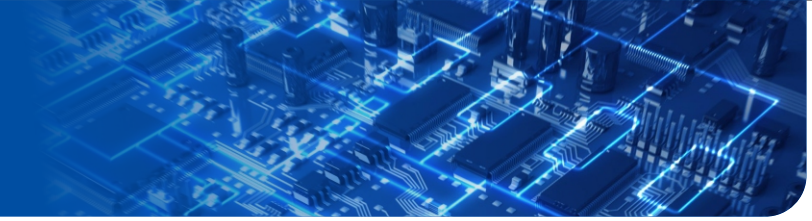
▶同步轴控制 Synchronous Axis Control

同主轴同时螺纹车削 Thread Turning with the Same Spindle Simultaneously	○	●	●	●	●
双通道主轴同步 Dual-Channel Spindle Synchronization	○	○	●	●	●
轴耦合/交换/混合 Axis Coupling/Exchange/Mixing	○	○	●	●	●

● 支持 ○ 不支持

Product Feature Configuration
Parameter Specifications

产品功能配置参数规格



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▶机械手 Robotic arm						
机械手独立通道控制 Independent channel control of robotic arm	○		●	●	●	●
▶刀塔 Turret						
刀塔 Turret	电动刀塔、液压刀塔、伺服刀塔、轴控刀塔 Electric Turret, Hydraulic Turret, Servo Turret, Axis-Controlled Turret					
▶高速高精 High-speed High-precision						
主轴 (c) 轴动态定位 Dynamic Positioning Of The Main Spindle (c-axis)	无需停止切换 可直接执行定位 (需伺服主轴) No need to stop switching, direct positioning execution (requires servo spindle)					
攻牙快速退刀 Rapid Retraction of Tool for Tapping	●		●	●	●	●
单节间不停顿模式 Continuous Mode Without Stopping Between Sections	●		●	●	●	●
全闭环控制功能 Closed-loop Control Function	○		●	●	●（速度控制全闭环 (AB相反馈，SSI反馈-选配)） Speed Control Full Closed Loop (AB Phase Feedback, SSI Feedback - Optional)	
▶补偿功能 Compensation function						
锥度补偿 Taper compensation	●		●	●	●	●
反向间隙补偿 Backlash compensation	●		●	●	●	●
圆弧尖角补偿 Corner radius compensation	●		●	●	●	●
双向螺杆误差补偿 Bidirectional screw error compensation	●		●	●	●	●
前馈补偿 Feedforward compensation	●		●	●	●	●
冷热机温度补偿 Thermal compensation for cold/hot machines	○		○	●	●	●
▶可编程尾顶(伺服尾座) Programmable Tailstock (Servo Tailstock)						
可编程尾顶(伺服尾座) Programmable Tailstock (Servo Tailstock)	○		○	●	●	●
▶切削功能 Cutting Function						
抛物线插补 Parabolic Interpolation	●		●	●	●	●
椭圆插补 Ellipse Interpolation	●		●	●	●	●
圆柱插补 Cylinder Interpolation	●		●	●	●	●
三维圆弧插补 3d Circular Arc Interpolation	○		● 任意三轴笛卡尔坐标系内的空间球面插补 ● Space Spherical Interpolation In Arbitrary Three-axis Cartesian Coordinate System			
多边形切削 (飞刀) Polygon Cutting (fly Cutting)	●		●	●	●	●
极坐标插补 Polar Coordinate Interpolation	●		●	●	●	●
攻牙 Thread Tapping	G84/G88		G84/G88 (● 倾斜攻牙) G84/G88 (● Inclined Thread Tapping)			
螺纹切削 Thread Cutting	● 螺纹循环车削，多头螺纹、圆弧螺纹、斜螺纹、变距螺纹等车削 ● Support For Thread Cycle Turning, Multi-start Threads, Helical Threads, Variable Pitch Threads, And Other Thread Cutting Operations.					
断屑车削 Chipping Breakage Turning	● 二代 (直线、圆弧、螺纹断屑) ● Generation 2 (linear, Circular, Chip-breaking For Threading)					
▶公共轴 Common Axis						
公共主轴 Common Spindle	○		●	●	●	●
▶主轴SSV控制 Spindle SSV						
主轴SSV Spindle SSV Control	○		○	●	●	●

● 支持 ○ 不支持

Product Feature Configuration
Parameter Specifications

产品功能配置参数规格

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▶辅助功能 Auxiliary functions

自定义开机画面 Custom startup screen	○	●	●	●	●
自定义M码 Custom M-code	○	●	●	●	●
自定义G码 Custom G-code	○	●	●	●	●
总线轴与泛用轴混用 Mixing bus axes and generic axes	○	●	●	●	●
IO重定义功能 IO redefinition function	○	●	●	●	●
倾斜轴加工 Tilted axis machining	○	○	○	●	●
倾斜平面加工 Tilted plane machining	○	○	○	●	●
DNC加工 DNC machining	○	●	●	●	●
比例缩放 Proportional scaling	○	●	●	●	●
加减速类型 Acceleration/Deceleration Type	直线型（恒A）、S型（恒JERK） Linear Type (Constant Acceleration), S-Type (Constant Jerk)				
刀具寿命管理 Tool Life Management	时间限制/次数限制管理 Time Limit/Count Limit Management				
保护功能 Protection Functions	安全门、硬极限、软极限、夹头未夹紧检测、刀塔换刀检测 Safety Door, Hard Limit, Soft Limit, Unclamped Chuck Detection, Tool Change Detection				
程式预测 Program Prediction	●程式预测/程式回退功能 ● Program Prediction / Program Backtracking Function				
手轮插断 Handwheel Interrupt	●	●	●	●	●
再启动功能 Restart Function	程序断点自动寻找再启动、自定义再启动 Automatic Program Breakpoint Searching and Restart, Customized Restart				
多功能手轮 Multi-function Handwheel	●	●	●	●	●
图形模拟 Graphical Simulation	程式执行前图形预览，程式执行中动态描图 Program Preview Before Execution, Dynamic Plotting During Program Execution				
权限管理 Authority management	参数权限管理 Parameter Access Management				
万年历锁机 Calendar Lock	●	●	●	●	●
轴向负载监控 Axis Load Monitoring	●	●	●	●	●
示波器功能 Oscilloscope Monitoring	实时监控系统命令及伺服回授波形 Real-time Monitoring of System Commands and Servo Feedback Waveforms				
跟随误差检测 Following Error Detection	●	●	●	●	●
主轴转速到达检测 Spindle Speed Reach Detection	●	●	●	●	●
数据备份 Data Backup	程式备份、参数备份、刀补备份 Program Backup, Parameter Backup, Tool Compensation Backup				

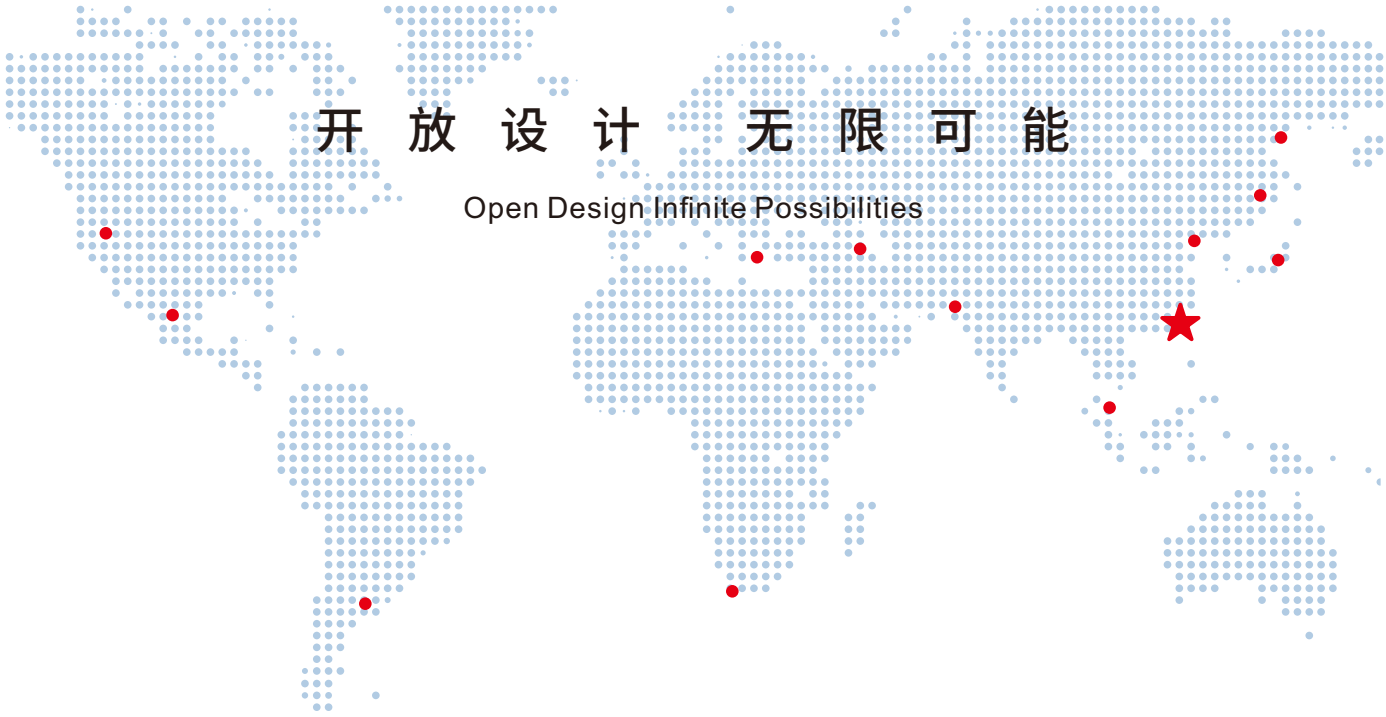
▶五轴联动RTCP Five-Axis Simultaneous Control with RTCP

RTCP RTCP	○	○	○	选配 Optional	选配 Optional

▶工具包 Tool Kit

工业物联网 Industrial Internet of Things (IIoT)	选配 Optional
视觉检测 Vision Inspection	选配 Optional

● 支持 ○ 不支持



服务网点 Service Network

广州GuangZhou	190-6540-9303	泉州QuanZhou	190-6540-9954	宁波NingBo	181-2427-8569	温岭WenLing	181-2490-4248
玉环YuHuan	190-6540-9143	温州WenZhou	190-6540-9032	杭州HangZhou	190-6540-9143	常州ChangZhou	181-2794-8586
南通NanTong	190-6540-9075	重庆ChongQing	181-2421-7208	成都ChengDu	181-2426-7408	北京BeiJing	190-6540-9853
济南JiNan	181-2796-9436						

广州亿达科技有限公司 Guangzhou Finger Technology Co.,Ltd

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亿达官网
Finger Official Website

亿达微信公众号
Finger Official Wechat

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